Drug Nutrient Depletion: Which Medications are Robbing Your Body of Essential Nutrients and Natural Ways to Restore Them

Event Type
Live Online

ACPE Expiration Date
10/4/2015

Credits
1 Contact Hour

Target Audience
Pharmacists

Program Overview
Patients who take medicine have to deal with a well-known fact, drug nutrient depletion. It causes uncomfortable, unwanted side effects, anything from nagging aches and pains to life-threatening diseases. By putting back what medication stole, we as pharmacists are able to keep patients more comfortable and improve adherence.

Pharmacist Educational Objectives
• List the most popular medication classes and their common side effects with regards to nutrient depletion
• Explain systems that help patients compensate for nutrient depletion
• State strategies on how pharmacists help patients mitigate side effects, and improve medication compliance

Activity Type
Knowledge

Accreditation
Pharmacist 0798-0000-12-065-L01-P

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Drug Nutrient Depletion: Which Medications Are Robbing Your Body of Essential Nutrients and Natural Ways To Restore Them

Suzy Cohen, RPh
Author of Drug Muggers, Diabetes without Drugs, And The 24-Hour Pharmacist

Drug Muggers: (noun) An over-the-counter or prescribed medication, food, herb, medical condition, or lifestyle choice that is capable of robbing your body’s natural stores of an important vitamin, mineral, or hormone.

The Pharmacist Can help:
1.) We can install a ‘nutrient security system’
2.) Minimize or eliminate potential side effects
3.) Reverse side effects
4.) Increase patient compliance & medication adherence
5.) Improve patient outcomes

Licensed pharmacist for over 23 years
Author of syndicated column “Dear Pharmacist” for 13 years
Active member of numerous international organizations
• American College for Advancement in Medicine (ACAM)
• Institute of Functional Medicine (IFM)
• American Academy of Anti-Aging Medicine (A4M)
• American Pharmacist’s Association (APhA)
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Public brainwashing...

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start COLA earlier!

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Drug-nutrient Depletion

- Drugs interact with cellular mechanisms in order to produce a desired effect, but may also disrupt additional aspects of cellular function.
- Over time, this disruption causes a deficiency in another, often unrelated, area of the body.
- Nutrient deficiencies can lead to worsening symptoms:
  - Depression, Osteoporosis, Muscle spasms, Cataracts
  - Macular degeneration, anemia, fatigue, digestive complaints...
- IMPROVE ADHERENCE & PATIENT COMPLIANCE
Delving deeper: The Statin Dilemma

- Statins - used to lower cholesterol and reduce the risk of heart attack - are one of the most prescribed classes of drug.
- Statins function by suppressing HMG-CoA. However, this also blocks the production of CoQ10.
- CoQ10 deficiency can lead to the following symptoms:
  - Leg cramps, heavy, achy legs
  - High blood sugar
  - Impotence
  - Shortness of breath, fatigue
  - Depression and memory loss
  - Liver enzyme abnormalities
  - Cardiac arrhythmias or palpitations

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Probiotics

- Flora developed at birth
- Not only for GI problems
- Flora fingerprint is unique
- High quality probiotic with few strains

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Vitamin A (beta-carotene)

• What is it?
  • Antioxidant and fat-soluble vitamin, comes from two sources:
    ▪ Retinoids (derived from animal sources)
    ▪ Carotenoids (derived from plants)
  • Beta-carotene is converted to vitamin A in the intestine and liver
  • Vitamin A aids fat cells in heart, brain, lungs, liver
  • Supports healthy teeth, bones, eyesight, fertility, and immune function
  • Also a powerful skin nutrient – cleans up damaged cells accumulating on skin and provides some protection from the UV rays

Vitamin A deficiency

• Deficiency in vitamin A leads to:
  ▪ Poor vision, dry eyes, vision loss, cornea problems
  ▪ Bitot’s spots – gray patches in the whites of the eyes
  ▪ Long-term deficiency may cause blindness
  ▪ Cervical dysplasia
  ▪ Dry or rough skin
  ▪ Increased risk of infection and cancer due to free radical damage

Vitamin A Drug Muggers

• What depletes it?
  ▪ Acid blockers: Famotidine, Omeprazole, Ranitidine
  ▪ Antacids: Maalox, Bispacel, Tums, Alka-Seltzer
  ▪ Antibiotics (oral/topical): Neomycin (eyedrops, eardrops, ointments)
  ▪ Antigout: Colchicine
  ▪ Bile Acid Sequestrants
  ▪ Lipase Inhibitors
  ▪ Miscellaneous
  ▪ Alcohol
  ▪ Malabsorption disorders like Celiac, Crohn’s, IBS, and pancreatic insufficiency
  ▪ Mineral oil
  ▪ Olestra

Vitamin A studies

• Studies prove it!
  ▪ Omeprazole increases pH (lowers gastric acidity), reduces Beta Carotene absorption.
  ▪ Bile Acid Sequestrants reduce absorption of fat-soluble vitamins.
  ▪ Colchicine linked to malabsorption of beta carotene.
  ▪ Robinson C, Wayle E. 1984. 46-54
Vitamin A on your plate

Install a nutrient security system:

Excessive amounts of vitamin A in supplement form can be toxic, but beta-carotene is safer because your body will convert only as much as it needs.

• For general health: 5-15mg (8-25,000 IU) per day
• Drug Mugger dose: 15-20mg (25,000-33,340 IU) per day

Put this on your plate!

Beta carotene is a reddish-orange pigment that occurs naturally in leaves of plants and in foods like: sweet potatoes, carrots, pumpkins, tomatoes, red peppers, apricots, and peaches.

Other good sources of vitamin A include steak, liver, dairy products, and eggs. Lightly sautéing or steaming vegetables may even increase the beta-carotene’s absorbency!

Vitamin B₆ (pyridoxine)

• What is it?
  ▪ A nutrient that boosts mood, encourages sleep, and nourishes the entire nervous system
  ▪ Increases levels of serotonin, GABA, and dopamine
  ▪ Supports production of red blood cells and nerves
  ▪ Reduces homocysteine levels and keeps sex hormones in check, decreasing risk of breast and prostate cancer

Vitamin B₆ deficiency

• Deficiency in vitamin B₆ leads to:
  ▪ Weakness
  ▪ Mental confusion
  ▪ Depression
  ▪ Insomnia
  ▪ PMS
  ▪ Anemia → hypothyroidism → diabetes
  ▪ Skin lesions or seborrheic dermatitis
  ▪ Mouth pain, tongue sores, or tongue discoloration

Vitamin B₆ studies

• Studies prove it!
  ▪ Estrogen hormones
  ▪ Antibiotics
  ▪ Anticonvulsants
What depletes it?

- Acid blockers:
  - Antacids
  - Antibiotics
  - Anticonvulsants
  - Barbiturates
  - Blood Pressure Drugs
  - Bronchodilators
  - Cardiac Glycoside
  - Cholesterol Agents

- Diabetes Medications
- Hormone Replacement Therapy/Oral Contraceptives
- MAOIs
- NSAIDs
- Parkinson’s Drugs
- Miscellaneous
- Alcohol
- Excessive protein intake
- Drug muggers of zinc or riboflavin (zinc and riboflavin are required for activation of B6)

Install a nutrient security system:

Because vitamin B6 is energizing, I suggest taking it in the morning. Look for B6 as pyridoxal 5'-phosphate (P5P), which is the most body-ready version of the vitamin.

- For general health: 10-25mg per day, (if P5P, 5-15mg per day)
- Drug Mugger dose: 50-100mg per day (if P5P, 30-60 mg per day)

Put this on your plate!

Baked cod and yellowfin tuna, nuts, kale, beans, bananas, spinach, turnip greens and “ready to eat” cereals contain a lot of B12. Also, taking healthy probiotics and Saccharomyces boulardii will help control the amount of yeast in your gut, which will prevent your vitamin B6 from being depleted.

What is it?

- Naturally occurring nutrient needed to make red blood cells
- Plays vital role in homocysteine level maintenance
- Enables methylation

Folic acid (vitamin B9)
Deficiency in folic acid leads to:

- Increased homocysteine levels
- Increased risk of cervical and uterine cancer
- Inability to methylate \( \rightarrow \) more toxins and potentially cancer-promoting genes active
- Atherosclerosis
- Depression, irritability, confusion, forgetfulness
- Megaloblastic anemia
- In pregnant women, risk of neural tube defects in unborn child

Studies prove it!

- Antacids & Acid blockers
- Estrogen Hormones
- Ibuprofen
- Triamterene & Spironolactone

What depletes it?

- Acid blockers
- Analgesics
- Antacids
- Antibiotics
- Anticonvulsants
- Anti-inflammatory drugs
  - ibuprofen, celecoxib, etodolac
- Methotrexate (Anti-metabolite): DON’T GIVE Folic Acid though
- Antivirals
- Barbiturates
- Many blood Pressure Drugs
- Cholesterol Agents (Bile Acid Sequestrants)
- Corticosteroids
- Diabetes medications
- HRT: Oral Contraceptives
- Muscle Relaxants
- Aromatase Inhibitors
- SERMs
- SSRIs

Install a nutrient security system:

Try to find the active forms of folic acid, rather than taking folic acid, a synthetic form. Active forms in clude 5-methyltetrahydrofolate (5-MTHF), calcium folinate, and folic acid.

- For general health: 400-800 mcg per day
- Drug Muggler dose: 800-2400 mcg per day

There are many dietary sources of folate, including lentils, pinto beans, romaine lettuce, spinach, broccoli, cauliflower, lima beans, strawberries, chickpeas, and flaxseed.
Vitamin B₁₂ (methylcobalamin)

- What is it?
  - Water-soluble B vitamin
  - Plays vital role in sleep, energy, and nervous system maintenance
  - Methylcobalamin protects against glutamate-induced excitotoxic neuronal damage

Vitamin B₁₂ deficiency

- Deficiency in vitamin B₁₂ leads to:
  - Fatigue and weakness, especially in arms and legs
  - Depression
  - Pale skin and lips
  - Easy bruising
  - Peripheral neuropathy
  - Vibration, buzzing, or pins-and-needles sensations in hands and feet
  - Memory loss & confusion

Vitamin B₁₂ studies

- Studies prove it!
  - Metformin
  - Acid blockers & Antacids
  - Estrogen Hormones

Vitamin B₁₂ Drug Muggers

- What depletes it?
  - Acid blockers
  - Antacids
  - Antibiotics
  - Anticonvulsants
  - Antigout
  - Antivirals
  - Many blood Pressure Drugs
  - Cholesterol Agents
  - Diabetes medications
  - HRT/ Oral Contraceptives
  - Aromatase Inhibitors
  - Parkinson’s Drugs
  - Psychiatric Drugs
  - SERMs
  - Miscellaneous
    - Alcohol
    - Any drug that reduces microflora
    - Hypochlorhydia
    - Infection with H. pylori bacteria
    - Potassium supplements and drugs
    - Vegetarian or vegan diet
**Vitamin B₁₂ on your plate**

Install a nutrient security system:

The methylated form of B₁₂ is the best form of the supplement. Cyanocobalamin is a semisynthetic version that is not absorbed as well as methyl B₁₂. Methylcobalamin is also available as an injectable substance.

- For general health: 250-500 mcg per day
- Drug Mugger dose: 1,000-5,000 mcg per day (reduce after a few months and take with a B complex)

Put this on your plate!

Vitamin B₁₂ is found primarily in animal foods like beef liver, liverwurst, snapper, venison, shrimp, salmon, lamb, halibut, blue cheese, and eggs. Other great sources include oysters, clams, spirulina, tempeh, miso, and tofu.

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**Magnesium**

- **What is it?**
  - Beneficial mineral that helps us relax and be in a good mood
  - Necessary for stabilizing blood pressure
  - Helps pancreas function optimally

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**Magnesium deficiency**

- Western societies are deficient in magnesium as a result of soil depletion and food processing.

- **Deficiency** in magnesium leads to:
  - Increased blood pressure
  - Muscle weakness, tremors, and spasms
  - Arrhythmias
  - Migraines, insomnia, anxiety
  - Depression, suicidal thoughts
  - Osteoporosis
  - PMS symptoms

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**Magnesium Drug Muggers**

- **What depletes it?**
  - Acid Blockers, esp. PPIs
  - Antacids
  - Antibiotics
  - Antiviral Agents
  - Blood Pressure Drugs
  - Candida albicans
  - Cardiac Glycoside
  - CNS Stimulants
  - Cholesterol Agents
  - Corticosteroids
  - HRT/ Oral Contraceptives
  - Immunosuppressants
  - Aromatase Inhibitors
  - Osteoporosis Drugs
  - SERMs
  - Sulfonamides
  - Miscellaneous
  - Alcohol
  - Coffee (chlorogenic acid)
  - High cortisol levels
  - Malabsorption (Celiac, Crohn’s, pancreatitis, crash dieting)
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Magnesium studies

• Studies prove it!
  - Proton Pump Inhibitors
    - Mackey JD, Bladin PT. Hypomagnesaemia due to proton-pump inhibitor therapy: a clinical case series. GIM 2010;103:387-90.
  - Female Hormones (contraceptives)
  - Diuretics

Magnesium on your plate

Install a nutrient security system:

When getting your magnesium levels checked, be sure to have the doctor check your RBC magnesium, not the serum magnesium.

• For general health: 100-400mg per day
• Drug Mugger dose: 600-800 mcg per day

Put this on your plate!

Swiss chard, spinach, kelp, tofu, legumes, chocolate, oatmeal, quinoa, halibut, beets, scallops, yellowfin tuna, brown rice, oats, and lima beans all contain magnesium.

Be sure to also get enough calcium, as these two work together.

Iron

• What is it?
  - Naturally occurring mineral
  - Necessary for production of hemoglobin
  - Supplementation may cause harmless discoloration to stool

Iron deficiency

• Deficiency in iron leads to:
  - Fatigue
  - Depression
  - Pale skin and pale or sore tongue
  - Brittle nails
  - Prone to infection
  - Hypothyroidism
Iron studies

- Studies prove it!
  - Estrogen Hormones
  - Gastric Acid Reducers
  - Bile Acid Sequestrants (not statins)

Iron Drug Muggers

- What depletes it?
  - Acid Blockers
  - Analgesics
  - Antacids
  - Anti-inflammatory drugs
  - Antivirals
  - Bisphosphonate Bone-Builders
  - Many Blood Pressure Drugs
  - Chelating Agent (Cuprimine brand of “Penicillamine” used for copper chelation [Wilson’s Disease])
  - Cholesterol Agents
  - Salicylates
  - Sulfonamides
  - Thyroid Medicine
  - Natural Desiccated Thyroid
  - Levodopa
  - Miscellaneous
  - Alcohol
  - Coffee and tea
  - Dairy products
  - Excess zinc supplementation
  - Hypochlorhydria

Iron on your plate

Install a nutrient security system:

Excessive iron supplementation can cause free radicals, which have toxic side effects on tissues, especially the lining of blood vessels.

- For general health: eat iron-rich foods
  - Men need 10-20mg per day
  - Women need 20-30 mg per day
- Drug Mugger dose: 20-30mg per day for up to 3 months

Put this on your plate:

There are many dietary sources of iron which are easily absorbed, including liver, red meat, poultry, and seafood. Other sources include Swiss chard, spinach, dill weed, cinnamon, parsley, chickpeas and shiitake mushrooms. Hawaiian spirulina is another source of iron, about 10mg elemental per 500mg tablet.
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Zinc

• What is it?
  • Antioxidant needed to see, hear, taste food, and sex drive
  • Participates in biochemical reactions with 100 different enzymes
  • Boosts immune system
  • Needed to make both insulin and thyroid hormone
  • Easily lost in...
    • Sweat
    • Feces and urine
    • Hair
    • Skin
    • Sperm
    • Menstrual blood

Zinc deficiency

• Deficiency in zinc leads to:
  • Digestive disorders
  • Frequent infections
  • Diabetes
  • Hypothyroidism
  • Elevated homocysteine levels and decreased vitamin B₁₂ and folate concentrations
  • Decreased vitamin A → visual problems
  • Muscle atrophy
  • Decreased fertility (both men and women)
  • Low sex drive

Zinc studies

• Studies prove it!
  • HCTZ (Hydrochlorothiazide)
  • ACE Inhibitors and ARBs (Angiotensin Receptor Blockers)
  • Corticosteroids
  • HRT/Oral Contraceptives
  • Aromatase Inhibitors
  • SERMs
  • Miscellaneous
  • Exposure to heavy metals

Zinc Drug Muggers

• What depletes it?
  • Acid Blockers
  • Analgesics
  • Antacids
  • Antituberculosis Agents
  • Antivirals
  • Many Blood Pressure Drugs
  • Chelating Agent (Cuprimine)
  • Cholesterol Agents
  • Corticosteroids
  • HRT/Oral Contraceptives
  • Aromatase Inhibitors
  • SERMs
  • Chocolate
  • Coffee, tea, soda
  • Excess copper
  • Estrogen dominance
  • Heavy metal toxicity
  • Tobacco
Zinc on your plate

Install a nutrient security system:

Zinc and other mineral supplements should be taken with food to minimize upset stomach or diarrhea.

• For general health:
  • Men need 10-25mg per day
  • Women need 5-15mg per day
  • Drug Mugger dose: 15-25mg per day

Put this on your plate!

Dietary sources of zinc include liver, crimini mushrooms, oysters, beef, lamb, chicken, lobster, nuts, pumpkin seeds, beans, maple syrup, miso, and shrimp.

Thank you!

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